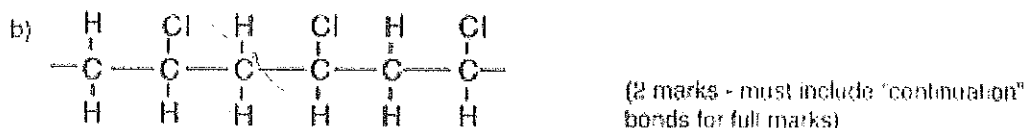


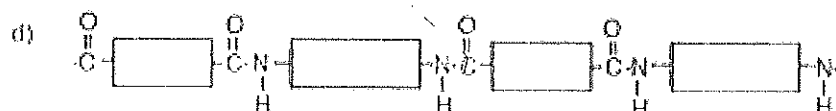
End of Section D Questions

1. a) Compound (1) of carbon and hydrogen only (1).
 b) The higher the number of carbons, the higher the boiling point (1).
 c) fractional distillation (1)
 d) any valid use (see text; "as a fuel" isn't sufficient) (1)
 e) $C_{10}H_{22}$ (1)
 f) $C_{15}H_{32}(l) + 23O_2(g) \rightarrow 15CO_2(g) + 16H_2O(l)$ (2 marks - deduct 1 for incorrect state symbol for the alkane)
 g) Pass through lime water (1). Turns milky (or alternative) (1).
 h) incomplete combustion (1) produces carbon monoxide (1). Poisonous (1). Combines with haemoglobin preventing oxygen transport in blood (1).
2. a) Saturated: all carbon-carbon bonds are single (1). Unsaturated: contains at least one C=C bond (1).
 b) cracking (1)
 c) i) $C_{17}H_{35} \rightarrow 2C_2H_4 + C_3H_6 + C_{10}H_{22}$ (2 marks - allow one for $C_{10}H_{22}$ even if equation is unbalanced. Ignore state symbols, even if they are wrong.)
 ii) alkane (1)
 d) Pass through (or shake with) bromine water (1). Decolourisation (1) shows the presence of C=C.

3. a) Joining up lots of small molecules (1) to make a large molecule (1).

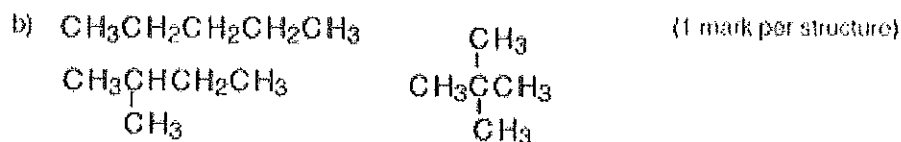


- c) A reaction in which a small molecule is lost when two others join together. (1)



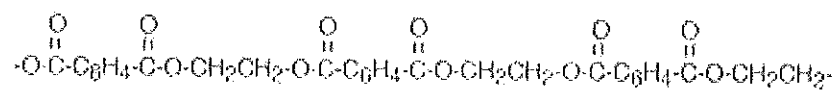
(3 marks: alternating different sized or shaped blocks (1). CO and NH groups attached to the correct blocks - i.e. 2 x CO groups on one block, and 2 x NH groups on the other - and bonded correctly (1). "Continuation bonds" at either end of the chain (1).)

4. a) Molecules with the same molecular formula (1) but different structural formulae (1).



- c) pentane (1)

3.



(For home-schooling parents: Work this out by drawing the structures of the two monomers, as shown in the question, alternately in a row. Then remove water from -OH groups which find themselves next door to each other, and join up what is left.)